



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,870	02/23/2004	Takeshi Oono	Q79594	7088
23373	7590	09/02/2005		
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER KALIVODA, CHRISTOPHER M				
ART UNIT			PAPER NUMBER	
2883				

DATE MAILED: 09/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/782,870	Applicant(s) OONO ET AL.	
	Examiner Christopher M. Kalivoda	Art Unit 2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on Response to Elect/Restrict 06/30/2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 5, 12 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6-10, 13 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 1, 3, 7, 11 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>04/27/2004</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of claims 1-4, 6-11, 13 and 15-17 in the reply filed on June 30, 2005 is acknowledged.

### ***Information Disclosure Statement***

The information disclosure statement submitted on 04/27/2004 was considered by the examiner. However, it is noted that copies of the two Japanese references cited in the IDS, JA 08-250542 and JA 2002-236228 were not in the file. These references were considered and a machine translation is being sent to Applicant.

### ***Claim Objections***

Claims 1, 7 and 17 are objected to because of the following informalities:

Regarding claim 1, page 84, line 10, the phrase "to be" appears to be extraneous.

In addition, the elected species, which refers to Figures 17 and 18, does not show an alignment hole in the waveguide as claimed on page 84, lines 22-23. This portion should be removed from the claim.

Regarding claim 7, page 85, line 28, the phrase "to be" appears to be extraneous.

In addition, the elected species, which refers to Figures 17 and 18, does not show an alignment hole in the waveguide as stated in the preamble on page 86, lines 6-7. This portion should be removed from the preamble.

Regarding claim 17, page 91, lines 31-32, the phrase "to be" appears to be extraneous.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 6 - 10, 13, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al., U.S. Patent Application Publication 2003/0053766.

Regarding independent claims 1, 7, 13 and 15 as claimed, Cheng et al. teach an optical device mounted substrate assembly comprising and method of manufacture comprising: a ceramic substrate (para 32, lines 3-6 and Fig 9, ref sign 78) having a front surface and a first recess having an open end at least at the front surface (Fig 9, ref sign 100); an optical device (Fig 9, ref sign 40) mounted on the front surface of the ceramic substrate and having at least one of a light emitting portion and a light receiving portion (para 32, lines 7-10 and 37-40), the optical device being to be optically connected to one of an optical waveguide (Fig 9, ref sign 17) and an optical fiber connector (Fig 9, ref sign 64) in a way as to align optical axes of the optical device and

one of the optical waveguide and the optical fiber connector with each other; a resin layer (Fig 9, ref sign 104) disposed in the first recess and having a second recess smaller in diameter than the first recess and having an open end at least at a side corresponding to the front surface; and an alignment guide member fitted in the second recess (Fig 9, ref sign 34) and having a protruded portion protruding from the front surface of the ceramic substrate and fittingly engageable in an alignment hole of one of the optical waveguide and the optical fiber connector (Fig 9, hole of Fig 9, ref sign 64 that guide pin 34 passes through).

However, the reference does not explicitly state, "a first recess" or "second recess".

Cheng et al. do teach using holes with resin (Fig 9, ref sign 100 and 104).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include recesses with a resin layer.

The motivation is to secure parallel optics assemblies used in fiber optics communications (para 1, lines 1-3).

Regarding independent claims 16 and 17 as claimed, Cheng et al. teach an optical component equipped optical device mounted substrate assembly comprising: an optical component (Fig 9, ref sign 64) having at least one of an optical transmission function, a light condensing function and a light reflecting function (Fig 9, ref sign 96 are lenses), the optical component further having an optical component side alignment recess (Fig 9, hole of Fig 9, ref sign 64 that guide pin 34 passes through); a substrate

Fig 9, ref sign 78) having a substrate side alignment recess (Fig 9, ref sign 100); an optical device (Fig 9, ref sign 40) mounted on the substrate and having at least one of a light emitting portion and a light receiving portion (para 32, lines 7-10 and 37-40), the optical device being optically connected to the optical component in a way as to align optical axes of the optical device and the optical component with each other; and an alignment guide member (Fig 9, ref sign 34) fittingly engaged in the optical component side alignment recess and the substrate side alignment recess.

However, the reference does not explicitly state, "component side alignment recess" or "substrate side alignment recess".

Cheng et al. do teach using holes and guide pins for alignment (Fig 9, ref sign 34).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include component side alignment and substrate side alignment side recesses.

The motivation is to secure parallel optics assemblies used in fiber optics communications (para 1, lines 1-3).

Regarding claims 2 and 9, the second recess is a high-precision machined hole (Fig 9, ref sign 40) and the guide pin is fitted into the high-precision machined hole as described above.

Regarding claim 4, the ceramic substrate comprises two first recesses (Fig 9, ref sign 100 top and bottom) each having the resin layer formed with the second recess

(Fig 9, ref sign 104 top and bottom), the optical device (Fig 9, ref sign 40) is disposed between the second recesses

Regarding claim 6, the optical device is positioned with reference to the second recess since it is between the second recesses.

Regarding claim 8, the inner diameter of the first recess is larger than the inner diameter of the second recess since the inner recess is in the first recess as described above.

Regarding claim 10, an uncured resin material is in the first recess and cured since the resin is an epoxy (para 33, next to last sentence).

### ***Allowable Subject Matter***

Claims 3 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 3 and 11, the prior art of record, taken alone or in combination, fails to disclose or render obvious a resin layer containing an inorganic filler having a thermal conductivity higher than that of a resin material forming the resin layer.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 5,987,202 to Gruenwald et al describes a ceramic

Art Unit: 2883

substrate with an optical device mounted on the surface. U.S. Patent 6,641,310 to Williams describes alignment of optical components using guide pins. However, these references are silent with respect to a resin layer in a first recess forming a second recess and alignment guide member fitted in the second recess.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Kalivoda whose telephone number is (571) 272-2476. The examiner can normally be reached on Monday - Friday (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Cmk  
08/30/05

  
**KAVEH KIANNI**  
**PRIMARY EXAMINER**